

WHAT IS CLAIMED IS:

1. A hard disk drive, comprising:

a base;

a cover covering the base;

5 at least one rotatable data storage disk supported on the base;

at least one actuator movably mounted within the base;

at least one assembly supported by the actuator, the assembly including a slider
supported by a suspension; and

10 at least one motion limiting element positioned to block shock-induced motion of
the assembly when the slider is operating in at least an active region of the disk, the
motion limiting element being spaced from the suspension such that motion of the
suspension away from the disk in the event of a shock when the slider is operating in the
region is constrained by the motion limiting element.

2. The disk drive of Claim 1, wherein a distance is established to constrain movement

15 of the suspension away from the disk, such that an air bearing between the slider and disk is not
substantially disrupted.

3. The disk drive of Claim 2, wherein both the cover and the base are formed with
respective motion limiting elements.

4. The disk drive of Claim 2, wherein the motion limiting element is established at least in part by an indent in the cover depending down from a plane defined by the cover.

5. The disk drive of Claim 2, wherein the motion limiting element is established at least in part by a rib in the base rising up from a plane defined by the base.

5 6. The disk drive of Claim 2, wherein the disk defines a data storage area and the motion limiting element is arcuate shaped across substantially the entire data storage area of the disk.

7. The disk drive of Claim 2, wherein the disk defines a data storage area and the motion limiting element extends only across a portion of the data storage area of the disk.

10 8. The disk drive of Claim 7, wherein the motion limiting element is juxtaposed with a load-unload ramp of the disk drive.

9. A hard disk drive having a motion limiting element mechanically constraining movement of at least one suspension of the disk drive away from a disk of the disk drive in the event of a mechanical shock to the disk drive while operating at least in a protected region of the disk such that an air bearing between a slider supported by the suspension and the disk is not substantially disrupted.

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10. The hard disk drive of Claim 9, comprising:

a base;
a cover covering the base; and
at least one actuator movably mounted within the base, the suspension being mounted on an end of the actuator.

5 11. The disk drive of Claim 10, wherein both the cover and the base are formed with respective motion limiting elements.

12. The disk drive of Claim 10, wherein the motion limiting element is established at least in part by an indent in the cover depending down from a plane defined by the cover.

10 13. The disk drive of Claim 10, wherein the motion limiting element is established at least in part by a rib in the base rising up from a plane defined by the base.

14. The disk drive of Claim 10, wherein the disk defines a data storage area and the motion limiting element is arcuate shaped across substantially the entire data storage area of the disk.

15 15. The disk drive of Claim 10, wherein the disk defines a data storage area and the motion limiting element extends only across a portion of the data storage area of the disk.

16. The disk drive of Claim 15, wherein the motion limiting element is juxtaposed with a load-unload ramp of the disk drive.

17. A data storage device, comprising:
at least one data storage medium;
at least one data transfer element juxtaposed with the medium for transferring data
therebetween; and

5 means for mechanically constraining movement of data transfer element away
from the data storage medium in the event of a mechanical shock to the device while
operating in a protected region of the medium.

18. The data storage device of Claim 17, comprising:

10 a base;
a cover covering the base; and
at least one actuator movably mounted within the base, the data transfer element
being mounted on an end of the actuator.

20. The data storage device of Claim 18, wherein both the cover and the base are
formed with respective means for mechanically constraining.

15 21. The data storage device of Claim 18, wherein the means for mechanically
constraining is established at least in part by an indent in the cover depending down from a plane
defined by the cover.

22. The data storage device of Claim 18, wherein the means for mechanically constraining is established at least in part by a rib in the base rising up from a plane defined by the base.

23. The data storage device of Claim 18, wherein the means for mechanically
5 constraining is arcuate shaped across a radial portion of the data storage medium.

24. The data storage device of Claim 18, wherein the means for mechanically
constraining extends only across an outer radial portion of the data storage medium.